

CP316

Serial Communication-I2C

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Serial Communication -I²C

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- Inter-Integrated Circuit Interface

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- Master/slave communication

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- Uses 2 signals (and Ground),
SDA and SCL

Serial Communication -I²C

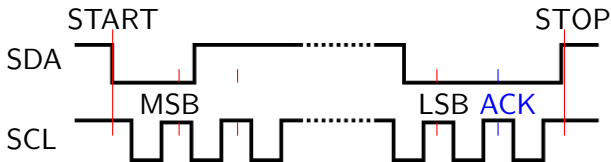
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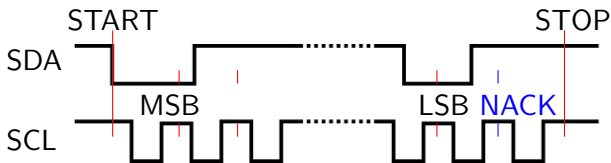
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SDA and SCL
- Many slaves can be on the same bus since each has an address
Device addresses are pre-programmed, but can usually be changed
- Synchronous, so master controls clock rate



- I²C ; bits are read when SCL is HIGH
- ACK is sent by receiver if OK
sender must release SDA after LSB



- I²C ; bits are read when SCL is HIGH
- NACK is sent by master-receiver if OK sender must release SDA after LSB



- I²C write to slave register



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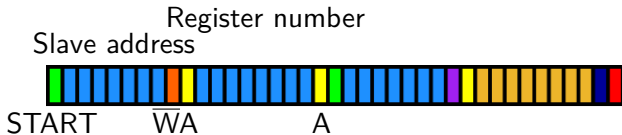
- I²C read from slave register



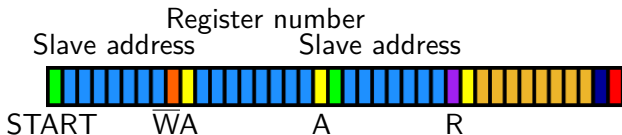
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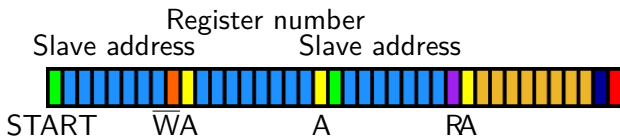
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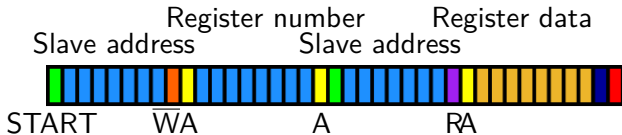
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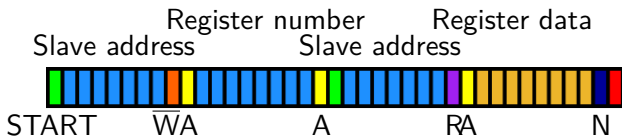
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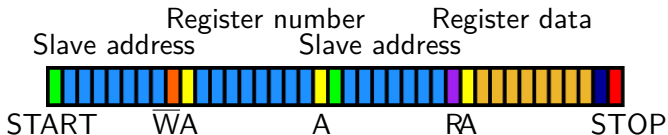
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Introduction

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QwikFlash modules

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ramifications???

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interrupts; transmit and receive

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→ Sections 6.4.5 to 6.4.7

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→ Sections 6.4.5 to 6.4.7

→ **Section 8.2**

Master Synchronous Serial Port (MSSP) module

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2 modes; **SPI** and **I²C**

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2 modes; **SPI** and **I²C**

→ Section 15.0 -15.2

I²C

I²C

2 wires, master-multiple slave

I²C

2 wires, master-multiple slave
overview

I²C

2 wires, master-multiple slave

overview

→ Section 11.2

I²C

2 wires, master-multiple slave

overview

→ Section 11.2

I²C module

I²C

2 wires, master-multiple slave

overview

→ Section 11.2

I²C module

→ Sections 11.3 to 11.6

I²C

2 wires, master-multiple slave

overview

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I²C module

→ Sections 11.3 to 11.6

→ Section 15.4

I²C summary

I²C summary

2 wires (+ ground), one-to-many

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SCL (from master)

I²C summary

2 wires (+ ground), one-to-many
SCL (from master)
SDA (serial data)

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2 wires (+ ground), one-to-many
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data transmission rate set by SCL

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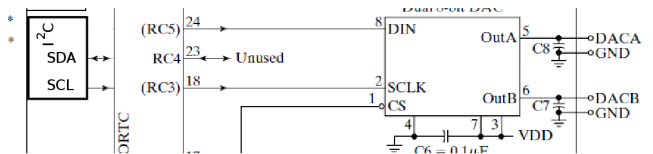
data transmission rate set by SCL

address for each device, preset (but possibly programmable)

packets are complex; address of recipient, read or write, data
(variable number of bytes)

Qwikflash I²C connections

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Bit-bashing

Bit-bashing

overview

Bit-bashing

overview

reasons

Bit-bashing

overview

reasons

NIB

Code

Code

PORT configuration

Code

PORT configuration

→ macro or subroutine?

Code

PORT configuration

→ macro or subroutine?

Initiallization

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PORT configuration

→ macro or subroutine?

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→ macro or subroutine?

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PORT configuration

→ macro or subroutine?

Initiallization

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Write to device

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